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GEOGRAPHIC SCHOOL BULLETINS

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Marvin Breckinridge

THE NETHERLANDERS BOUGHT HARD SHOES FOR THE HARD ROAD WAR MADE THEM TRAVEL

Except in unusually damp places and in special occupations, few Netherlanders before the war wore the wooden shoes associated with them by foreigners. But the war left less leather for civilians, and wooden shoes were forced back into circulation. This shoe dealer contributes twice to the campaign to save shoe leather: by selling wooden shoes, and by bringing shoes to the customer, who tries them on in the street. "Telefoon" is one of many words which will look familiar to Americans in the Netherlands (Bulletin No. 3).

GEOGRAPHIC SCHOOL BULLETIN

HOW TEACHERS MAY OBTAIN THE BULLETINS

The Geographic School Bulletins are published weekly throughout the school year (thirty issues) and will be mailed to teachers in the United States and its possessions for one year upon receipt of 25 cents (stamps or money order); in Canada, 50 cents. Originally entered as second-class matter January 27, 1922; re-entered as of April 27, 1943, Post Office, Washington, D. C., under Act of March 3, 1879. Copyright, 1944, by National Geographic Society, Washington, D. C. International copyright secured. All rights reserved. Quedan reservados todos los derechos.

Ruhr Basin, Arsenal of Nazi Might

THE RUHR Basin, facing assault by Allied armies, is one of the greatest war prizes within Germany's borders. Small geographically, but fabulously rich as a coal and steel center, the Ruhr has been the arsenal of Nazidom. It is one of the world's most highly developed and concentrated industrial areas (illustration, next page).

This ugly "black country" of mines and foundries is near Germany's western frontier, only 15 to 60 miles from the Netherlands border.

Bombed almost continuously for more than three years, the Ruhr still provided the foundation for Germany's industrial war might. Its basic wealth is coal, and coal mines are hard to bomb out of commission. Its iron and steel plants, fed by domestic, French, and Swedish ores, have managed to retain for the area the position of the No. 1 heavy industrial center of the Reich.

Coal Treasury of Germany

Peacetime Ruhr was a region of amazing statistics. Its Rhine port, Duisburg, ranked as the greatest river port of Europe, above tidewater, with an annual tonnage comparable to Europe's largest seaports. Its coal mines produced three-fourths of Germany's total output and contained one-half the reserves of continental Europe. Coke made from five per cent of its known deposits, according to expert estimates, could smelt all the ore in France's rich Lorraine fields. In 1938 the tiny Ruhr nearly equalled the production in rolled steel of all the rest of Europe, excluding England and Russia.

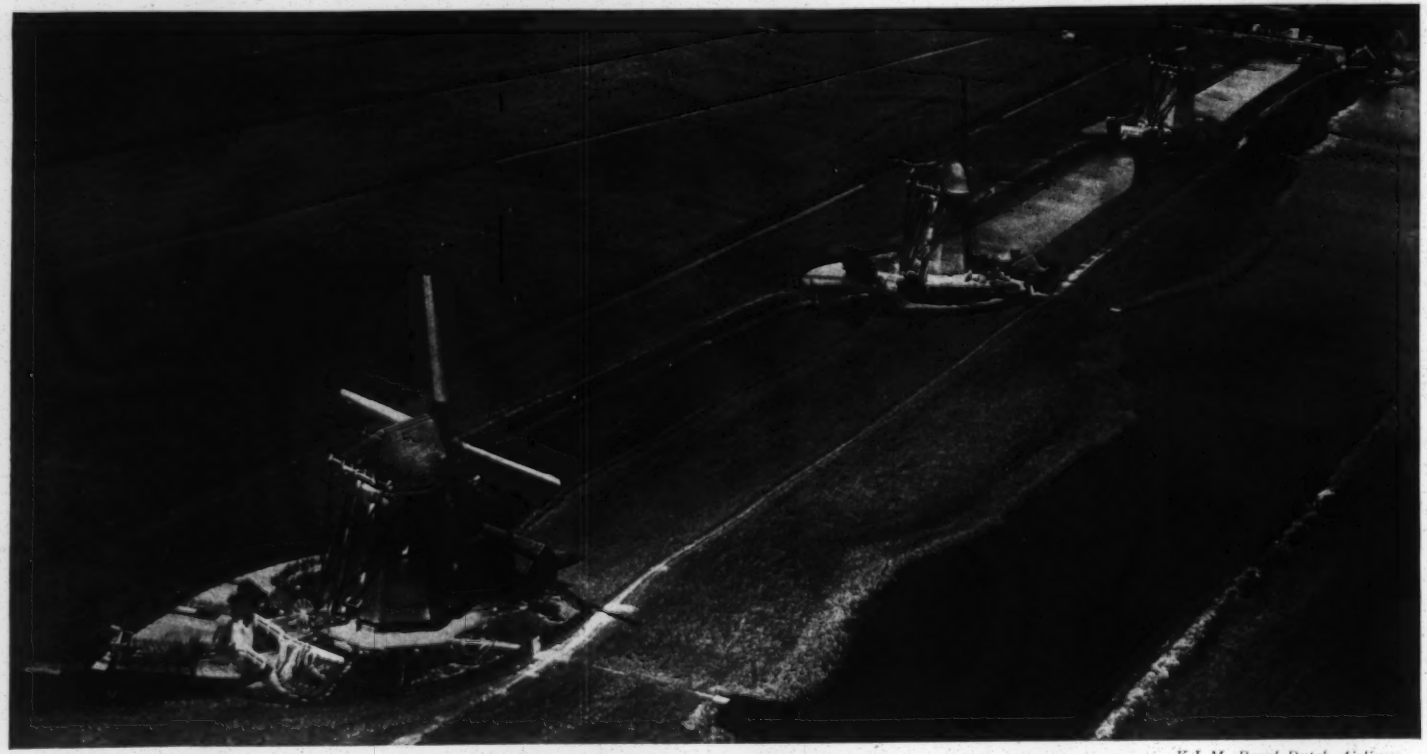
Germany's much advertised dispersal of heavy industry to the interior of the nation has not changed the unalterable fact that most of the coking coal must come from the Ruhr. The ore from new mines nearer the center of the country continued to be sent to the Ruhr for smelting. The largest known non-Ruhr steel plant is at Braunschweig (Brunswick), built on the low-grade Salzgitter ore field. In 1940 it was reportedly turning out only one-eleventh as much pig iron as the Ruhr.

The industrialized part of the Ruhr River valley proper measures only about 40 by 10 miles. The entire Ruhr economic region is somewhat smaller than Delaware. It is contained in a triangle about 65 miles on each side, with the cities of Cologne, Hamm, and Wesel at the angles. The Rhine River forms the western base of the triangle and the Ruhr River almost evenly bisects it. In addition, some of the Ruhr industry spills over to the west of the Rhine to Krefeld and München-Gladbach.

Ruhr Centers Compared with U. S. Cities

The teeming, smoke-blackened cities of the Ruhr proper are on the Rhine or in the Ruhr Valley, built squarely on the coal fields. An idea of the enormous concentration of the population in the Ruhr can be had by imagining all the following United States cities in the State of Delaware: Boston, Pittsburgh, Milwaukee, Buffalo, Newark, Kansas City, Louisville, Atlanta, and Richmond. Also, six other cities of the Ruhr region have populations of more than 100,000 persons each.

A half-dozen of the larger cities—Duisburg, Oberhausen, Essen (home of the Krupp works), Gelsenkirchen, Bochum, and Dortmund—lying cheek by jowl along the Ruhr Valley within an overall distance of 35 miles, form in reality a single



K.L.M. Royal Dutch Airlines

WINDMILLS WORK BENEATH SEA LEVEL TO MAKE LAND FROM WATER FOR THE NETHERLANDS

About a third of the Netherlands is "handmade," reclaimed from sea or marsh. In the reclamation process known as impoldering, a drowned area is enclosed in dikes, then the water is pumped off through drainage canals. The drained patch of land is called a polder. In the 14th century the Netherlanders set the wind to work pumping off the water, and since then the windmill has been a trademark of the country. A string of windmills, each pumping the water into a section of canal a foot higher than the preceding stretch, can drain land which may be 8 to 12 feet below sea level. An unsolved mystery is the reason why all the windmills swing their arms counter-clockwise. Modern electric pumps are replacing the windmills in many districts of the Netherlands (Bulletin No. 3).

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Where Are the Yanks? 14. The Marianas Islands

(This is the second article supplementing the series, "Where Are the Yanks," which appeared in Vol. XXII, about the regions where American service men and women are stationed.)

"THICK as flies on Saipan." That expression, say Yanks in the Marianas, has far more meaning than such old favorites as "hair on a dog's back" or "trees in a forest."

Blame it on the Japs. Flies flourish on the sugar cane crops. The Marianas were turned into rich sugar plantations when they became part of the Japanese-mandated islands of Micronesia, after World War I. By crossing Java and Formosa cane, the Japs developed a hardy new variety, and began a large sugar export trade in this island group, which had had little commerce during 300 years of Spanish influence and 15 years of German control.

Before the present war the Marianas were the most prosperous of all the islands of Jap-ruled Micronesia. About 40 per cent of the total population of the Mandate was concentrated in this arc of islands with an area only about four times that of the District of Columbia.

Guam, Rota, Tinian, Saipan, Pagan, and ten smaller land spots comprise the Marianas. Where are they and what are they like? How did Guam, the largest, become a U. S. possession?

Japs Fiercely Defended Their Island Airfields

Curving northward from the central Carolines, the string of the Marianas cuts across the route from Hawaii to the Philippines. The islands average 35 miles apart along a 520-mile arc. Guam marks the southern tip (map, next page).

The Marianas are a connecting link between the Bonins, Japan's island outpost, and the Carolines, southernmost islands of the Mandate. No wonder the Japs defended them fiercely. From airfields on the larger Marianas, U. S. super bombers could range the west Pacific from Tokyo to the Netherlands Indies and fly over the Philippines and New Guinea in round-trip flights shorter than the super-bomber runs from inland China to Japan's Yawata steel center.

Largest of the group except Guam, Saipan—Japanese capital of the Marianas—was the site of a naval base and several airfields. It forms a roughly equilateral triangle with Tokyo, 1,460 miles to the north, and Manila, 1,680 miles to the west. Eniwetok, nearest of the Yank-held Marshalls, lies about 1,100 miles east.

The five southern Marianas outrank the northern ten in size and value, as well as in population. They are of coral limestone. The northern islands are of volcanic origin. Several of them, like Uracas, the northernmost—an active volcano—are uninhabited. Guam has an area of 206 square miles; Saipan embraces 50 and Tinian, next in size, 40 square miles.

Four-Legged Animals Were Imports

Unlike the flat Marshalls and Gilberts, the Marianas rise to hilltops 1,000 feet high. The islands are about two-thirds forested.

The group has an even, tropical climate, with temperatures close to the 80's all the year. Humidity is high; it rains daily. Occasional southwest monsoons supplant prevailing northeast trade winds between July and November. Earthquakes and typhoons are frequent.

Coconut palms, breadfruit and mango trees, banana plants, papaya and citrus trees supply fruit. Taro, rice, coffee, yams, corn, and tobacco are grown for home use in the rather barren clay and limestone soil. Fish are plentiful and are dried and exported. Most of the animals, from rats, cats, and dogs to cattle and water buffalo, have been imported.

When Magellan discovered the Marianas in 1521, there were perhaps 80,000 natives—chocolate-brown Polynesians with some Asiatic blood. Because they swarmed over his ships and took souvenirs when he landed on Guam, Magellan named the islands the Ladrones, or Robber Islands. Spanish missionaries who arrived in 1668 renamed the group the Marianas for Maria Anna of Austria, widow of Philip IV of Spain.

In 1898, after the Spanish-American War, the colonies of defeated Spain were at Uncle Sam's mercy. When the United States decided to keep only Guam and the Philippines, the other Marianas and the Carolines were returned to Spain, who sold them to Germany for $4,500,000. Japan seized them in 1914 and won them under mandate at the peace table after World War I.

Thus U. S.-ruled Guam lay, before World War II, in a hotbed of Japanese war preparations. While the United States dismantled Guam's defenses, to comply with disarmament agreements, Japan secretly fortified Saipan, Tinian, Truk, Ponape, and near-by islands. The

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chain city of two and one-half million people, not counting suburbs. Düsseldorf and Cologne lie on the Rhine south of the Ruhr River mouth, and Wuppertal, textile city, occupies a parallel valley just south of the Ruhr.

Besides mining coal and producing pig iron and finished steel for plants all over Germany, these cities form the Nazi chemical center. In oil-poor Germany, coal is used to make synthetic oil, high-octane gasoline, and rubber. From coal Ruhr chemists also developed explosives, dyes, plastics, pharmaceuticals, rayon, and photographic film.

War Industries Boomed Cologne

Textiles are a third great industry of the Ruhr area. Also located there are the cutlery and fine-steel towns of Solingen and Remscheid.

Cologne is the economic capital of the Ruhr-Rhineland industrial kingdom. Founded in Roman times at a junction of natural travel routes, it had attained a population of only 80,000 in 1871. The booming of Ruhr industries since then has made Cologne Germany's fourth city, with 768,000 inhabitants.

Note: The cities of the Ruhr region may be found on the National Geographic Society's new Map of Germany and Its Approaches, which was issued as a supplement to the July, 1944, *National Geographic Magazine*. A price list of maps may be obtained from the Society's headquarters in Washington, D. C.

For additional information on the Ruhr, see the following GEOGRAPHIC SCHOOL BULLETINS: "Germany's Rhineland of Prime Military Value," October 2, 1944; "Why Do These German Cities Get Bombed?", February 22, 1943; "Germany's Industrial Ruhr," February 10, 1941; and "War Targets in Germany," January 6, 1941.

Bulletin No. 1, October 9, 1944.

Wolff

RUHR BLAST FURNACES FED GERMANY'S WAR MONSTER

Night and day, through more than a decade of "peace" and the shattering Allied air raids of war years, Ruhr blast furnaces have run at near capacity to supply steel for Germany's military monster. A large square shield (center), dark goggles, and heavy gauntlets protect this workman from the intense heat as he clears sand from the blast furnace opening so that molten iron can flow out. Through the trough (foreground) the fiery liquid will run into hopper cars which will take it away to be processed into steel. The long rod is tipped with heat-resistant clay to keep it from melting.

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The Netherlands a Water-Ruled Vestibule to Germany

ALLIED paratroopers who dramatically invaded the Netherlands last month arrived by the one route which was not heavily defended—the air. The Netherlands has long advertised the measures by which opening the dikes would slow up an invasion over land or sea frontiers.

Nearly 40 per cent of the area is below or at sea level, amply justifying the nation's name of Nether. This is Europe's largest patch below sea level outside the U.S.S.R. An additional percentage is below the level of the myriad canals and channelized rivers held between dikes to the height of the roofs of houses beside them. These portions could also be flooded.

Chief Seaports Are Inland

Careful plans drawn up as early as World War I were spoken of as enlisting the Netherlands' old enemy, the sea, to aid in national defense by flooding designated regions. This would prevent a water-borne invasion except in the shallowest boats and would prolong the journey to a beachhead. Actually, the plans called for Rhine and Maas river water to do the flooding. Salt water from the sea would damage the fertility of soil on which generations of Netherlanders had labored more than 900 years; river water would not.

When sky-trains of U. S. paratroopers and gliders swung low over the countryside on their mission of invasion, wide stretches of the land were under water, ruthlessly flooded by Nazi officials. The broad sheets of water were broken here and there by red tile rooftops and rows of trees. But the water obstacle was successfully avoided by the sky route.

Another obstacle to water-borne invasion is that the country's best seaports are not on the sea coast, but inland. The chief port, Rotterdam, stands about 20 miles inland up one of the branches of the Rhine. Amsterdam is approximately 18 miles inland, connected with salt water by the North Sea Canal. Vlissingen (Flushing) in the southwest corner of the country, IJmuiden at the North Sea Canal's mouth, and Den Helder to the north are among the few ports, all of them small, on the coast.

Both Sea-Built and Sea-Battered

The sea, which constantly threatens the Netherlands in peacetime and its enemies in wartime, is the grudging source of much of the nation's land and prosperity. In spite of its small size, the country has a longer North Sea coast line (about 500 miles) than any of its neighbors on the continent. Now the area of the country (12,704 square miles) is approximately the same as Maryland's, thanks to nearly a thousand years of industrious engineering by which field after field was reclaimed from the water (illustration, next page).

It was the sea that made the Netherlands a land of windmills, when man's uphill struggle against the tides called for pumps (illustration, inside cover).

The sea too enabled the country to maintain the world's second-densest nation-wide population (nearly 700 people per square mile) by international commerce and colonial trade. Rotterdam (population 610,000) on the Rhine delta has in peacetime ranked as the world's fifth-busiest port, on the basis of net tonnage.

Sea traffic made possible the Netherlands colonial empire of 790,000 square miles in two hemispheres, sixty times as large as the mother country. The nation

Marianas, like the Carolines, were virtually closed to the outside world for 20 years before the Pearl Harbor attack. Thus Guam, although valuable since 1935 as a station for Pan American Airways' transpacific clippers, had a naval garrison too small to defend it against the Japanese assault that came while smoke still rose from battered ships at Pearl Harbor.

Note: The Marianas are shown on the Society's Map of Southeast Asia, which is a supplement to the October, 1944, issue of the *National Geographic Magazine*.

See also, "Springboards to Tokyo," in the same issue of the *Magazine*.

Bulletin No. 2, October 9, 1944.

THE LARGER THE ISLAND THE SMALLER THE BAY IN THE MARIANAS

Scalloped with coral reefs, peaked with mountains, the Marianas shrink in size and importance as they sweep north from Guam to Uracas, toward Tokyo. Little bays—Cetti, Umatac, and Ylig—dent big Guam's shores; while smaller Saipan has large Magicienne Bay and Tanapag.

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Targets in Japan: Kyushu's Cities of Steel and Ships

PROMINENT among targets hit by the recent spectacular raids of American B-29's are the industrial cities on Kyushu, Japan's southernmost large island. These include Yawata and neighboring cities along a 16-mile strip of northern coast; Sasebo, site of a naval arsenal and shipyards, and westernmost of the island's cities; and Nagasaki, the metropolis of Kyushu. These are all in the northern and western sections of the island.

NAGASAKI WAS JAPAN'S FIRST OPEN PORT

Commercial and shipbuilding center of southern Japan, with a prewar population of 212,000, Nagasaki is situated near the center of a three-pronged peninsula jutting from Kyushu's western coast into the East China Sea. The city lies at the head of Nagasaki Bay on an excellent harbor opening to the southwest and sheltered by hills and islands. On the west side of the bay are a fort and the Mitsubishi Shipyard.

The main area of Nagasaki lies on flat land along the northeast shore of the bay, extending back into ravines between heavily wooded hills. Houses crowd the hillsides and compete for space with shrines and temples. Many of the buildings are of stone from Yagami-take, a cone-shaped mountain east of the city. Near the busy water front were consulates of foreign countries and some industrial plants such as cotton-spinning mills. Canals, spanned by arched bridges, reach back into the town.

The Mitsubishi Shipyard, nearly a century old, built most of Japan's peacetime liners. Its proximity to the steel mills of northern Kyushu was a great asset when it began to build warships (illustration, next page). The city's second-ranking industry was the Akunoura engine works.

Nagasaki was Japan's earliest open port. It was the only port for foreign commerce as early as the 16th century. Just before the Russo-Japanese War, Russia leased headquarters there for its Asiatic squadron, bringing considerable prosperity to the district.

SASEBO A NAVY-BUILT CITY

Sasebo is 35 miles north of Nagasaki on a protected bay on Kyushu's west coast. It was a small fishing village when Commodore Perry, in 1854, negotiated the treaty establishing trade relations between the United States and Japan.

Sasebo's selection as a site for a naval arsenal and base, when Japan embarked on its naval expansion program in the early 1880's, started the rapid growth to its prewar population of more than 173,000 inhabitants.

YAWATA THE HEART OF THE JAP RUHR

Yawata, with nearly 209,000 people before the war, was the largest of the cities grouped at the northern tip of Kyushu which form Japan's principal concentration of steel manufacture and heavy industry. This industrial strip lies along the south shore of the Shimonoseki Strait across from Honshu, the main island, at the western entrance to the Inland Sea. It extends from Moji on the east to Orio on the west, with the large cities of Kokura, Tobata, and Yawata forming a triangle about midway. Smaller towns between these Jap Pittsburghs link the whole district into one continuous smoky line. Green mountains crowd-

ranks high among the world's leading shipbuilding lands.

Many parts of the Netherlands not drained from the sea are likely to have been deposited by the delta-building mouths of three foreign rivers. Southwestern Netherlands consists entirely of the deltas of the Schelde flowing in from Belgium, the Maas (Meuse) from France, and the lazy lower Rhine from Germany. Fraying out like the fibers of a rope end, canalized and channelized, the Rhine inside the Netherlands branches into three main distributaries—the Waal, the Lek, and the IJssel—and countless minor streams. Dikes carry the river waters above the surrounding land like the levees of the Mississippi.

The innumerable river branches, drainage canals, and transport canals necessitate innumerable bridges. Amsterdam alone had between three and four hundred. This accounts for the military importance of such structures as the Rhine bridge at Nijmegen, seized by British and American forces from the Germans.

The less-known part of the Netherlands is the higher country that curves like an amphitheater around the lush, low delta reaches of windmill and canal. This gravelly, rolling land comprises about 60 per cent of the nation's area.

Except in the plateau wedge of Limburg, cornered between Belgium and Germany, the Netherlands' "high lands" do not rise more than 330 feet above sea level. In Limburg the hills reach an elevation of nearly 1,000 feet around Maastricht, the nation's southernmost important city. Arnhem stands in the valley which the Rhine has cut through this higher country.

Note: The Netherlands is shown on the Society's Map of Germany and Its Approaches. See also, in the August, 1944, issue of the *National Geographic Magazine*, "Low Countries Await Liberation," a series of ten photographs of Belgium and the Netherlands; "Behind Netherlands Sea Ramparts," February, 1940*; and "Vacation in Holland," September, 1929*. *(Issues marked with an asterisk are included in a list of magazines available to teachers at 10c each in groups of ten.)*

Bulletin No. 3, October 9, 1944.

K. Maaskant

GHOST SHIPS SAIL A SEA OF GRAIN ON AN EX-SEA-BOTTOM FIELD

In much of the Netherlands, people live and work on the bottom of the sea; cattle graze; crops grow. For the sea bottom has been drained and put out in the sun to dry. On such recently reclaimed fields sunken ships may find themselves high and dry again, and older sand-buried wrecks may show only jagged mast top or rotting prow above the soil. The nation's most ambitious reclamation project has surrounded and captured an entire sea, the Zuider Zee. In 1932 the sea was cut off from the North Sea by completion of a 20-mile dam. Before the war, work was under way on the project for converting the area into three large polders and a freshwater lake, the IJssel Meer, thus increasing the nation's area by 7 per cent.

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These French Places Lent Their Names to English

SOLDIERS from the United States are looking at the names of places they occupy in France and seeing words they already know. They are discovering that Camembert was a town in Normandy before it was a cheese, and that champagne is not just a bubbly amber beverage but a broad region of eastern France.

Camembert: Little Village and Less Cheese

Imagine no beans in Boston. Then you will realize the surprise of Yanks in Camembert who could find no cheese.

Camembert, where the redolent cheese got its start about 1761, is still a mere village, in Normandy's green Pays d'Auge ("Trough Country") of orchards and cows. Among its handful of houses there still stood, before the war, the home of Marie Harel, who worked out the original cheese recipe. A monument was erected to her at Vimoutiers on the assumption that Camembert was too small for it.

Bayonne Invented Bayonets

Bayonne, with a prewar population of 28,500, is a port of southwestern France which was shelled by Allied warships early in the Battle of France. It stands three miles inland from the Bay of Biscay at the meeting point of the Adour and Nive rivers. Ten miles south rise the Pyrenees.

It was at Bayonne in 1640 that blades were first fixed on the ends of muskets. The new weapons were accordingly called bayonets.

In the Middle Ages the town was famous for its whaling fleet. Shipbuilding is still a major industry.

Alençon Made a Name with Lace

Soldiers who made their way into Alençon, in Normandy, might have noticed something familiar about the name. The nurses and WACs who followed knew that the familiar something was lace.

Point d'Alençon is a fine lace of hexagonal mesh (illustration, next page). Its heyday was the early 18th century. Modern Alençon, however, with about 18,000 people, made its living from such starkly useful products as bricks, shoes, and cloth. The town is about 115 miles southwest of Paris by rail.

Pills and Precious Metals Name Their Weights for Troyes

A manufacturing city of 58,000 people on the Seine River, about 75 miles southeast of Paris, Troyes was a prewar center of France's hosiery industry, silk, cotton, and woolen. Its Gothic cathedral and other art features are reminders of its fame as a center for sculpture and glass-painting.

But the thing that has put Troyes into every arithmetic book is troy weight, the table of units for measuring gold, platinum, drugs, and other substances of great value in small bulk. Two ounces of silver or two grains of aspirin are weighed by the troy pound, which has 12 ounces or 5,760 grains. This lightweight measuring system spread through Europe from Troyes, taking the name along, after the town became the scene of important trade fairs in the 13th century.

There was a settlement on this site when the Romans reached there. In this ancient town, capital of the old province of Champagne, was signed the Treaty of Troyes in 1420, which made the English king the regent of France. Nine years later Troyes was redeemed for France by Joan of Arc.

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ing the shore compress the strip's width to less than a half-mile at most points.

Heavy industry came to the region with the Imperial Steel Works, opened at Yawata in 1897. Patterned after the Krupp Works at Essen, Germany, this government project flourished under the guidance of Japanese metallurgists trained in Germany and the United States. A decade ago it covered a three-square-mile area.

Two factors have been outstanding in the growth of the steel works and of scores of other heavy industries in the Yawata district. First, Japan's largest and best developed coal mines are at Chikuho, only 10 miles to the south, and other large fields lie near Omuta, 60 miles southwest. Second, Japan lacks iron ore and this region of good ports is far more convenient to ore sources on the mainland of Asia to the west than are Japan's larger population centers, 300 miles to the east. Population of this northern strip is estimated to exceed one million, with more than a fifth of it at Yawata.

Moji, joined to Shimonoseki on Honshu by a railway tunnel under the Strait, has more than 120,000 inhabitants. Its plants produce steel, wire rope, copper wire, sugar, flour, and pottery. Kokura, with 110,000 people, seven miles southwest of Moji, was known for its arsenal and its textile industry.

Tobata, smallest city of the group, is 4 miles farther west. It has two steel mills, glass works, coke ovens, a vegetable-oil refinery, and a factory making electrical supplies. Eastward across a narrow bay is Wakamatsu, important as a coal-shipping port.

Note: The Island of Kyushu is shown on the National Geographic Society's Map of Japan and Adjacent Regions of Asia and the Pacific Ocean. A large-scale inset shows the industrial region of the northern end of the island.

For further information on Japan, see "Japan and the Pacific," in the *National Geographic Magazine* for April, 1944; and "Unknown Japan," August, 1942*; and in the GEOGRAPHIC SCHOOL BULLETINS, "Japanese Empire Centered on Map for the Geographic," April 3, 1944; and "Japan's Condemned Empire Was 50 Years in the Making," January 3, 1944.

Bulletin No. 4, October 9, 1944.

Keystone-Underwood

FROM A JAP SHIPYARD ANOTHER MARAUDING WOLF GOES TO JOIN THE PACK

In the half-century between the beginning of Japan's naval expansion and the attack on Pearl Harbor, both government and private shipyards, with great secrecy, built up a powerful navy. Headquarters of one of the country's three maritime districts was Sasebo on Kyushu. In addition to government shipyards on the island there were a number privately owned, including the extensive Mitsubishi yard at Nagasaki, which turned from making peaceful passenger liners to launching warships. The destroyer sliding down the ways, amid banzais from the bunting-decorated grandstand (left), flaunts the 16-rayed scarlet sun from her mast as she plunges into the water to join her sister ships in the deadly sea battles of the Pacific. This ship is one of more than 100 destroyers which the Japanese Navy was believed to have by 1940.

Champagne Gets Rich Crop from Poor Soil

Champagne is a broad plain east and southeast of Paris. Its name comes from the Latin *campania* for "level country." It owes much of its fame and income to the wine from the local grapes.

The northern part, known as Dry Champagne, consists of barren, desolate stretches with chalky soil, which dries quickly to a cementlike hardness. Wet Champagne, to the south, has clay and sand soils which retain moisture better. Fertile fields, lakes, and forests in Wet Champagne attest this difference.

A narrow strip of about 50 square miles along the western border of Champagne, near Reims and Épernay, is the wine district. In tiny and tenderly cultivated plots on the sheltered slopes of an escarpment grow the champagne grapes.

A Benedictine monk in Hautvillers Abbey, north of Épernay, is credited with inventing the process of champagnization, by which wines are made white and sparkling. Deep in the chalk that underlies the wine district are cellars where wine is stored to ferment in the bottle, retaining its effervescence.

Note: Cities of the liberated regions of France may be located on the Society's Map of Central Europe and the Mediterranean.

See also, "The Coasts of Normandy and Brittany," in the *National Geographic Magazine* for August, 1943; and "France Farms As War Wages," February, 1940*; and in the GEOGRAPHIC SCHOOL BULLETINS, October 2, 1944, "Where Are the Yanks? 13. Normandy, France."

Bulletin No. 5, October 9, 1944.

Harrison Howell Walker

LIGHT LACE WAS HEAVY INDUSTRY IN ALENÇON WHEN MEN WORE RUFFLES

Alençon was a fashionable spot in the centuries when lace collars, cuffs, garters, and shoe rosettes were what the well-dressed gentleman was wearing, while his lady was correspondingly bedecked. By copying and slightly varying the pattern of Venetian lace, needlewomen of the town made a delicate lace that became famous as *Point d'Alençon*. Some 8,000 people worked at lace-making during the peak period of the town's output, two centuries ago. Now, though machines have copied most laces, Alençon has tried to encourage the tradition of handmade lace by displaying lace samples in the town museum and conducting a school for lace-makers. Nuns in the local convent can demonstrate the old needlecraft art.

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